New Edition

Smoking and Health

Report of the Study Commission on Smoking and Health Issues

Hoken Dojinsha Inc.

Preamble

The percentage of smokers in Japan is in downward trend every year. However, the percentage of male smokers remains higher than that for the rest of the world, while the percentage of young female smokers is in upward trend.

In March 2000, the Ministry of Health, Labor and Welfare implemented the "National Health Campaign for the 21st Century" (*Kenko Nihon 21*) to increase healthy life expectancy and to improve the quality of people's lives. Its tobacco policy consists of four goals. They are (1) to disseminate sufficient knowledge on how smoking affects one's health, (2) to eliminate minors' smoking, (3) to implement segregated smoking in public places and workplaces thoroughly and to disseminate information on effective segregated smoking, and (4) to promote programs supporting people who want to quit smoking.

"Smoking and Health – Report on Smoking and Health Issues" was issued in 1993. With the planning of "Kenko Nihon 21," accumulation of the latest scientific data on smoking and health issues has been requested from many quarters. . Therefore we have assigned this task to a number of experts, including Suketami Tominaga, president of Aichi Cancer Center, which has led to the compilation of a report. The Ministry of Health, Labor and Welfare intends to use this report to promote measures against smoking. We hope that this report will help promote an appropriate understanding and appropriate action on smoking and health issues for local governments, for people involved in public health or the tobacco industry, and for the general public.

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Chapter 1 Current Conditions of Tobacco Products

Summary of Chapter 1 (P.1)

Chapter 1 explains the production and distribution of tobacco in Japan, provides an analysis of tobacco consumption with respect to health and the economy, and discusses public opinion on smoking.

Since Japan Monopoly Corporation (Nihon Senbai Kosha) was abolished on April 1, 1985, Japan Tobacco Inc. has had the exclusive right to manufacture tobacco in Japan. Japan Tobacco is bound by the Tobacco Business Law under the jurisdiction of the Ministry of Finance. Japan Tobacco purchases all leaf tobacco and raw materials for tobacco that are manufactured in Japan, except those not suitable for making tobacco. The Tobacco Business Law stipulates that selling manufactured tobacco requires the permission of the Ministry of Finance. Because of the trend toward deregulation, the number of companies with permission to retail tobacco is increasing by about 3000 shops every year, and in 1999, the total number of retail outlets exceeded 300,000. The amount of foreign tobacco sold in Japan has been increasing year after year, and in 1999 reached 24.7% of total domestic tobacco sales. In 1998, eight percent of the total sales of Japan Tobacco were exports.

An economic analysis of the tobacco industry indicates both negative and positive aspects. Amongst the negative aspects of smoking is the damage to peoples' health, including medical expenses and loss of income, losses to the labor force and lost tax revenue resulting from death or illness. Other negative aspects include the loss of property as the result of fire, environment-related losses such as cleaning expenses, and losses related to social issues, such as people interrupting their work to have a cigarette. Positive aspects include the tax revenues from tobacco, the investment of capital into other businesses by Japan Tobacco, the creation of added value, and so on. Four separate studies, by Maeda, Nakahara, Goto, and the Institute for Health Economics and Policy, have attempted to put a value of the social losses resulting from smoking. According to Maeda, the social loss in 1993 was 1.1406 trillion yen, according to Nakahara (1990) the loss was 3.1824 trillion yen, according to Goto (1990) the loss was 5.6 trillion yen, and according to the Institute for Health Economics and Policy (1993), the loss was 3.7935 trillion yen.

Research on the policies involving smokers includes that conducted by Jiji Hyoron. This research has been undertaken twelve times since 1983, and follows the format of surveys on the approval rating for political parties. In 1999, the Ministry of Health, Labor and Welfare conducted research on smoking and health. The results of these studies indicate that the public has a high level of interest in smoking-related issues.

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Today, many people are in favor of regulations restricting smoking in public places and workplaces, an improvement of smokers' manners, the prevention of teenagers smoking, and other policies.

Paragraph 1 Production of Tobacco (P.3)

Summary

The rights governing the manufacture, selling, and importation of tobacco in Japan were state-owned by Japan Monopoly Corporation (Nihon Senbai Kosha) from 1949 to 1985. To liberalize the importation of tobacco and to promote competition with foreign tobacco companies in the domestic market, Japan Tobacco Inc. obtained the rights to manufacture, sell and import tobacco on April 1, 1985 and it still retains the rights. Japan Tobacco has the exclusive right to manufacture and sell domestic tobacco in Japan.

Paragraph 2 Distribution of Tobacco (P.9)

Summary

Japan Tobacco Inc. is Japan's only manufacturer of tobacco. The Tobacco Service Company delivers the manufactured tobacco to the retailers, who sell the tobacco products to consumers. Retailers are divided into general retailers and special retailers, who import and sell manufactured tobacco products.

Foreign tobacco companies designate a specific Japanese trading company as their Japanese import agent. This agent is registered as a special retailer and imports and sells foreign tobacco. After going through the customs procedures, imported tobaccos are sent to the distribution bases, the distribution centers, the sales offices and then to the shops. There are sales promotion companies of foreign tobaccos. The amount of foreign tobacco sold in Japan is increasing every year, and in 1999 reached 24.7% of the total amount of tobacco sold in Japan. The number of retailers is also increasing by nearly 3000 every year, and in 1999 the total number was 302,000. Many of the new retailers that are also involved in other business activities are large-scale retailers. The number of cigarette vending machines was around 498,800 in 1995, with total sales reaching 1.5286 trillion yen, accounting for approximately 40% of the total tobacco sales. From April 1996, the tobacco industry implemented self-imposed restrictions on the late-night operations of vending machines (from 11 pm to 5 am). Another distribution route for tobacco includes the export of tobacco products manufactured in Japan. In 1998, Japan Tobacco sold 8% of its total out of tobacco products overseas.

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Paragraph 3 Economic Analysis on Tobacco (P.13)

Summary

Smokers are not the only ones to suffer from the effects of smoking. Smoking also damages the health of people near the smokers. Smoking hurts society with respect to health, the environment and the economy, causing fires, and excessive numbers of illnesses, deaths and accidents. Discussions on the social losses of smoking began from the medical and economic perspectives back in the late 1970s in the United States, as the country needed to take action against skyrocketing medical expenses. As a result, most of the reports were written from the viewpoint of the social expenses of smoking. On the other hand, the consumption of tobacco leads to an increase in the tobacco industry's profits as well as an increase in taxes and employment. It also has second and third-generation economic ripple effects to the related industries, such as transportation and advertising. Consequently, there are increased profits in a social sense. Reporters engaged in the economic analysis of smoking tend to provide different results according to which of these perspectives they emphasize. The economic analysis of tobacco could largely depend on the disease structure or the medical systems in the country in which the study is conducted. Therefore, we introduce the reports from Japan in 1-(1) to (3), and the overseas test calculations in 1-(4).

Paragraph 4 Tobacco and Public Opinion (P.27)

Summary

Public opinion can be defined in various ways. Some people define public opinion as the structural distribution of opinions held by certain types of people identified according to the methodology of the opinion polls on issues at some point in time. Here, we imply, in addition to "the views and ideas held by many people", "the opinions and ideas that cannot be ignored socially" for administrative policies to be implemented smoothly. In other words, public opinion is the voice of the people that must be considered in implementing any policy, but public opinion is not always correct. Public opinion that is correct comes from people who are interested in and sufficiently informed on the specific issues and capable of making rational judgments. In any case, public opinion has the power to change political issues in modern society. In the light of these ideas, the paragraphs on tobacco and public opinion should deal with what people have said as shown by the opinion polls. Accordingly, people's opinion will be analyzed in accordance with the framework of the tobacco policies.

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Chapter 2 Evidence of the Influence of Tobacco on Health and of Tobacco Dependence

Summary of Chapter 2 (P.35)

Chapter 2 describes the components of tobacco smoke, biomarkers of exposure to tobacco smoke, the methodology of epidemiological studies and the estimation of causal relationships. Chapter 2 also describes the extent of influence of smoking on the health of smokers, influence on surrounding nonsmokers, influence on next generations, and dependence.

Tobacco smoke is said to consist of about 4000 substances including many toxic and carcinogenic substances like nitrosamines. Many epidemiological studies have been conducted for the purpose of elucidating the influences of tobacco consumption on health. Epidemiological studies require the deliberate elimination of factors that cause bias when a control group is selected. Some people may point out that such technical problems influence the results of the epidemiological studies. However, such highly regarded epidemiological studies as Hirayama's "Cohort Study of Six Prefectures" in Japan and "the Report of the United States Surgeon General" have pointed out that smoking adversely influences peoples' health e.g. by increasing the risk of cancer. According to the estimation based on all death risks related to smoking, about 95,000 people in Japan died from smoking-related diseases in 1995. The figure far exceeds the number of deaths from car accidents, about 15,000, in the same year.
According to experimental reports smoking improves abilities of cognition and information processing, and short-term memory, confirming the notion that the main reasons for smoking include the increase of vitality. On the other hand, smoking is known to adversely affect the human body through poisoning, damage to circulation in the brain, and so on. Moreover, it has been reported that long-term smoking increases the relative risks of various diseases. The mechanism by which nicotine induces dependence is still being elucidated.

Past epidemiological studies over the years revealed that the relative risk of smoking was 2 or more for various cancers including lung cancer, esophageal cancer, cancer of oral cavity and oropharynx/laryngeal cancer. Studies are under way to elucidate the mechanisms by which the carcinogenic substances in tobacco smoke, such as nitrosamines and benzo(a)pyrene, cause cancer. The mechanism by which these carcinogenic substances cause mutations in cancer-related genes has been put forward.
Regarding colon cancer and breast cancer, which afflict many Japanese people, there

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are still controversies regarding the relationship between smoking and carcinogenesis, and we need to accumulate more epidemiological knowledge. Recent studies with methods of genomic science suggest the possibility that the genetic polymorphism of enzymes activating and detoxifying carcinogenic substances in tobacco smoke may influence the activity of the enzyme and cause individual differences in the sensitivity to cancer caused by smoking. Regarding the preventive effect of quitting smoking on cancer, epidemiological studies indicate that the ex-smokers have lower risk for such cancers as lung cancer, cancer of oral cavity, esophageal cancer and stomach cancer, than the current smokers.

Some epidemiological studies, including those conducted in Japan and elsewhere, report data indicating that the risk of apoplexy amongst smokers is nearly double that of non-smokers. As the result of recent advance in the technology of diagnostic imaging of arteriosclerosis which enabled us to evaluate the degree of arteriosclerosis via supersonic waves and so on, the relationship between smoking and the progress of carotid arteriosclerosis has been reported.

Regarding the influence on respiratory system that is directly exposed to tobacco smoke, the partial pressure of oxygen in the artery is shown to drop due to deterioration in the pulmonary function and gas exchange function. In addition, relationships with various respiratory diseases have been reported. In particular, there have been many reports on the relationships with chronic obstructive pulmonary diseases (COPD), such as chronic bronchitis and pulmonary emphysema. Recent studies in Japan have reported that quitting smoking led to an improvement in pulmonary functions and the suppression of its deterioration, suggesting the importance of quitting smoking in the fight against diseases such as COPD.

Some recent reports say that smoking leads to a significantly higher relative risk of insulin-independent diabetes mellitus. It is also said to be related to the risk of diabetic nephropathy as complications that could lead to dialysis.

Passive smoking is said to occur when a person is involuntarily exposed to tobacco smoke and is forced to inhale it. Studies on the health effects of passive smoking have been increasing in recent years. It has been reported that passive smoking increases the risk of diseases such as lung cancer and ischemic heart disease, and could be a risk factor for sudden infant death syndrome.

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Paragraph 1 Components of Tobacco Smoke (P.37)

Summary

Tobacco smoke contains approximately 4000 types of compounds consisting of a wide range of components that vary both physically and scientifically *[direct translation: maybe meant to be "chemically"]* when they decompose and react under the heat of smoking. Of these compounds, approximately 500 are reportedly in their gaseous phase. Most of the environmental tobacco smoke comes from sidestream smoke, which reacts to various physical and chemical factors in the environment as time passes, and induces changes. Of the 4000 types of compounds mentioned above, many are toxic and there are 60 carcinogenic substances, which are mainly said to be nitrosamines and polycyclic aromatic hydrocarbons (PAH). We will explain the components of tobacco smoke that have been identified so far.

Paragraph 2 Marker of Exposure to Tobacco Smoke (P.51)

Summary

Mainstream smoke and sidestream smoke have a significant difference in physical and chemical properties. A difference also exists between active smoking and passive smoking in the amount of substances taken. Many factors should be considered regarding the chemical substances that are used as the major biomarkers to confirm the state of smoking or exposure to it. These factors include specificity, sensitivity, detectable time, and the technology and cost needed to detect those substances.

Carbon monoxide in the exhaled air and CO-Hb in blood (carboxy-hemoglobin) are generally used as biomarkers of active smoking to detect the acute and chronic exposure to smoke. Nicotine and cotinine, nicotine's metabolites , are considered as biomarkers of exposure to tobacco smoke with the highest degree of specificity and sensitivity. Both nicotine and cotinine are detectable from blood, saliva, urine, hair, and the milk of pregnant women. Tobacco-specific nitrosamines and its metabolic products, which are related to carcinogenesis, could be reliable markers of exposure to tobacco smoke if they were detected in body fluids. Recently, DNA adducts of various carcinogenic substances in tobacco smoke can be detected and a number of related studies are under way. The application of such biomarkers to epidemiological studies requires a consideration of the time period during which each substance can be detected from the specimen in accordance with its biological half-life.

Regarding biomarkers of passive smoking, it is necessary to choose the specimen in accordance with different stages of development, including adulthood, childhood, and fetus. Cotinine concentration in an adult's bodily fluids is considered as a quantitative

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biomarker that optimally indicates the changes in exposure to environmental tobacco smoke (ETS) over time. However, this is not appropriate as biomarker of long-term ETS exposure from the perspective of epidemiological studies, such as in the cases involving active smoking. It is the future subject to apply the detection of various carcinogenic substances and their adducts in bodily fluids to the prediction of cancer risks from ETS exposure. The biomarker of a child's ETS exposure from immediately after birth through infancy has been the detection of cotinine in bodily fluids. In particular, the relationship between cotinine and passive smoking at home is being widely studied. Recently, albumin adducts of carcinogenic substances have been detected. As markers of an infant's exposure to the components of tobacco smoke that came through the mother's placenta, CO-Hb and cotinine in the blood of the infant immediately after birth as well as coninine in the urine and amniotic fluid are used. The marker also includes a measurement of the amount of cotinine in the bodily fluids during gestation. In addition, there have been reports of measurements of nicotine and cotinine in infants' hair.

Paragraph 3 The Methodology of Epidemiological Studies and the Estimation of the Causal Relationships (P.67)

Summary

Deliberate consideration is necessary to evaluate the causal relationships based on the data of epidemiological studies, such as cohort studies and case-control studies, and observational epidemiological studies in particular. It is not impossible to use only the results of observational epidemiological studies (with the data of animal experiments as a reference) to evaluate the causes of diseases. In fact, the 1964 Surgeon General report of the United States examined the results of observational epidemiological studies from five major perspectives, and concluded that smoking was a cause of lung cancer. Then Hill sorted out and expanded these factors and listed 9 factors to provide guidelines to evaluate the causes of chronic diseases.

Cohort studies in six prefectures conducted by Hirayama *et al.* is highly regarded as a study representing Japan and Asia concerning the influences of smoking on health. Data from Hirayama study are frequently cited in many documents both in Japan and overseas, including Surgeon General report of the United States and reports from the world's major research institutes, such as the International Agency for Research on Cancer (IARC). Indeed, Hirayama study has contributed much to the evaluation of cancer risks from smoking. This study, despite some methodological problems, is not inferior to other large-scale cohort studies conducted up to 1980s. If the problems with

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Hirayama study that have been pointed out could be eliminated, the influence of smoking on health would be much clearer.

There have been many controversies on the influence of smoking on health. Although the argument has already been settled internationally, some people in Japan still dispute the influence of smoking on health. History will determine whether these people are right or not. Both in and out of the country, there seems to be an accumulation of epidemiological evidence and evidence from animal experiments that sufficiently support the argument that tobacco policies should be further strengthened.

Paragraph 4 The Extent of Influences of Smoking on Health (P.79)

Summary

According to the Cancer Prevention Study II (CPS-II) carried out by the U.S. National Cancer Institute, the risk of death amongst smokers was twice as high as that amongst non-smokers. Similar results were obtained in follow-up studies on British physicians conducted during 1971 and 1991. In the light of these results, about a half of the people who started smoking in their teens could die from smoking.

Peto and Lopez *et al.* have estimated the number of excess deaths caused by smoking, according to the follow-up results of CPS-II and data concerning the death rate by sex and age from advanced nations. As a result, they have estimated that approximately two million people in all advanced nations, including approximately 95,000 in Japan, died in 1995 due to smoking. Of the total number of deaths amongst males in all advanced nations, it has been estimated that tobacco-attributed deaths were 24% in 1985 and 25% of total deaths in 1995, indicating that the rise in the number of deaths by tobacco has been being stopped. On the other hand, the number tends to be kept increasing in Japan during the same decade, from 14% in 1985 to 17% in 1995.

The incidence of lung cancer, mostly caused by smoking, is significantly increasing around the world. Internationally, lung cancer has been the most frequent cancer by sites since it exceeded stomach cancer in 1985. Nevertheless, many advanced nations, including the United States, have found there has been a decrease in both the incidence and mortality of lung cancer as a result of the trend away from tobacco. In Japan, however, there is no sign of such a decrease.

Using Disability Adjusted Life Years (DALY) as a criterion indicating the influence of smoking on one's health, the percentage of tobacco-related DALY compared to the total DALY was 2.6 worldwide in 1990. The figure is expected to reach nearly 10% worldwide by 2015. With DALY as a criterion, smoking is shown to have a very large influence on one's health.

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Paragraph 5 The Influence on Smokers (P.90)

Summary

Smoking is known to affect person in a number of ways. Some reports based on experiments say that smoking improves abilities such as recognition, information processing and short-term memory. This evidence is given as a main reason for smoking increasing vitality. On the other hand, smoking is known to adversely affect humans through addiction, a reduction of the cerebral circulation, and so on. Moreover, reports say that smoking over the long term raises the risks of contacting a number of diseases. The psychological mechanism through which nicotine induces dependence is being elucidated.

The results of long-term epidemiological studies show that smoking increases by a factor of at least two, the risk of contracting many types of cancer, including lung cancer, esophageal cancer, oral cancer and oropharynx/laryngeal cancer. Based on data such as this, we need to implement more effective measures against the use of tobacco. Studies are being conducted to determine the mechanism by which carcinogenic substances in tobacco smoke, such as nitrosamines or benzo(a)pyrene, cause cancer. The mechanism by which these carcinogenic substances generate mutations against various cancer-related genes has been proposed. Colon cancer and breast cancer, which afflict many Japanese people, remain a source of controversy regarding the relationship between smoking and carcinogenesis. We need to accumulate more epidemiological knowledge. Recent studies with genome scientific methods suggest the possibility that the genetic polymorphism of enzymes detoxifying carcinogenic substances in tobacco smoke may influence the enzyme's activity and cause differences between individuals in their sensitivity to cancer caused by smoking. Epidemiological studies indicate that ex-smokers had less risk of lung cancer, oral cancer, esophageal cancer and stomach cancer than current smokers.

Some epidemiological studies, including those conducted in Japan and elsewhere, report data indicating the relative risk of apoplexy amongst smokers is nearly twice that of non-smokers. The technology of diagnostic imaging of arteriosclerosis has developed in recent years, and has enabled us to evaluate the degree of arteriosclerosis via supersonic waves etc. This technology has led to reports on a relationship between smoking and the progress of carotid arteriosclerosis.

Regarding the respiratory system that is directly exposed to tobacco smoke, the partial pressure of oxygen in the artery is shown to drop due to deterioration in the pulmonary

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function and gas exchange function. In addition, relationships with various respiratory diseases have been reported. In particular, there have been many reports on the relationships with chronic obstructive pulmonary diseases (COPD), such as chronic bronchitis and emphysema. Some recent studies in Japan have reported that the effects of quitting smoking led to an improvement in pulmonary functions and the suppression of its deterioration. This suggests the importance of quitting smoking in the fight against diseases such as COPD.

It has been recently reported that smoking significantly increases the relative risk of insulin-independent diabetes mellitus. It has also been reported that smoking relates to the risk to develop diabetic nephropathy that may lead to dialysis as the complication.

Section 1 *The Acute Effects of Active Smoking (P.91)*

[Summary]

The main components of mainstream smoke, which causes the acute effects of active smoking in a living body, are nicotine and carbon monoxide. The influences of absorbing nicotine most significantly appear in the neuropsychological functions and the cardiovascular functions, irrespective of whether the person is aware of the influences. There are also changes in the metabolism and endocrine functions.

The neuropsychological effects of smoking well-correspond to the neuromodulatory function of nicotine. Increasing attention has been given to the evaluation of the effects on cerebral functions viewed from changes in a person's brain waves (EEG). In addition to the general hemodynamic changes, studies are also focusing on cerebral circulation, coronary circulation, dermal microcirculation, and uterine or placental circulation. The results of clinical studies in the cases with ischemic brain/heart diseases are being accumulated. New knowledge on the influences on blood, the components of the blood cells, and respiratory and digestive functions has also been added. With respect to metabolism, a decrease in the concentration of HDL cholesterol in the blood which suppresses atherosclerosis as well as influences on the rate of energy metabolism, blood sugar level, and lipid in the blood has been identified.

Section 2 *Cancer (P.109)*

Summary

An increased relative risk by a factor of two has been found amongst smokers in contracting cancers of the lung, esophagus, pancreas, oral cavity, oropharynx, hypopharynx, larynx, the ureter of the renal pelvis, and bladder. There is an ample evidence to judge the causal relationship between smoking and these cancers.

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Nephrocyte cancer, stomach cancer, hepatic cancer, or leukemia (myelocytic leukemia, in particular) is considered to be weakly related to smoking with a risk factor of around two or less. Cancers of the lips, nasal cavity, paranasal sinuses, or rhinopharynx are sites that could be related to smoking, although it is hard to conclude the presence of such a relationship because these cancers rarely occur.

Judging from the earlier reports, cancers of gallbladder, bile duct, salivary gland or ovary, as well as lymphoma, cerebral tumors, and cancers of the thyroid gland, adrenal gland or prostate are not likely to be related to smoking. Argument continues on the relationship between smoking and cervical cancer, colon cancer, or women's breast cancer. It is pointed out that endometrial cancer (cancer in the body of uterus) is negatively related to smoking, that is, it occurs less frequently in smokers.

Carcinogenic substances in tobacco smoke, such as benzo(a)pyrene, transform into an active form in the body and combine with DNA to form DNA adducts. The DNA adducts then induce such genetic mutation as point mutation or rupture of the DNA strand when DNA is replicated. It has been considered that genetic mutations such as these accumulate on cancer genes, cancer suppression genes, and DNA repair genes, and turn the cells cancerous. Regarding the types of cancer to be considered causal relationship with smoking, recent reports say that smokers have more DNA adducts in non-cancer cells of the relevant organs or more genetic mutations than do non-smokers, supporting the nation on the mechanism described above.

As one of the reasons why some smokers suffer from cancer while others do not, the genetic difference in the enzyme activity when carcinogenic substances in tobacco smoke are detoxified comes to the fore. This is, in other words, a genetic difference in peoples' sensitivity to tobacco smoke. Research is underway to identify the genes involved in the genetic susceptibility to lung cancer and other cancers.

Section 3 *Circulatory Diseases (P.122)*

Summary

In Western nations, it is an established epidemiological fact that smoking raises the risk of the onset of apoplexy. Several follow-up studies on the relative risks of smoking-related apoplexy conducted in Western nations have found that the relative risk of apoplexy amongst people who smoke a pack of cigarettes a day was between 1.4 and 3.7 times higher than non-smokers. The average relative risk was approximately 2. The United States National Stroke Association lists quitting of smoking as one of the important policies in its apoplexy prevention guidelines. The United States National Institute of Health (NIH) also emphasizes, in its pamphlet for

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nurses to advise patients, that smoking increases the risk of the onset of apoplexy by a factor of two. This is one of the supports for the patients to quit smoking. According to the cohort studies in Osaka, Shibata, and NIPPON DATE 80, smoking when a pack of cigarettes was smoked per day, increased the risk of apoplexy and death from apoplexy by a factor of two to three.

The Pooling Project, which combined the results of five cohort studies including the Framingham Study in the United States, showed that smoking a pack of cigarettes each day increased the risk of ischemic heart disease by a factor of two and a half. Compiling the results of all of the cohort studies in the Western nations has indicated that smoking a pack of cigarettes each day increases the relative risk of ischemic heart disease by two to three times, irrespective of whether the result is illness or death.

Unlike the influence of smoking on apoplexy, many cohort studies in Japan have shown that smoking is related to death or illness from ischemic disease. These cohort studies include the studies of six prefectures, Hiroshima/Nagasaki studies, Hisayamacho studies, and studies in Osaka and Shibata (Niigata). According to these studies, smoking a packet of cigarettes increases the relative risk of illness or death from ischemic heart disease by a factor of 1.7 to 2.2. NIPPON DATE 80 indicates that the relative risk is 1.7 to 1.9.

It has been widely recognized in the studies, including those in Japan and overseas, that chronic smokers have lower blood pressure than nonsmokers. Consequently, could quitting smoking lead to an increase in blood pressure? According to the MRFIT study, a U.S. study with a special intervention group consisting of 3470 people, the prevention of smoking was not directly related to an increase in the diastolic pressure. The study concluded that if the increase in body weight that resulted from giving up smoking could be controlled, the blood pressure would not rise and the number of hypertension patients would not increase. The results of 24-hour blood pressure monitoring indicated that smokers had a slightly lower level of blood pressure than non-smokers, although the blood pressure was found to drop if the smoker quit smoking.

In the United States, it has been reported that smokers' intima and media hyperplasia via cervical echo is faster than those of non-smokers, and thus smoking hastens the progress of arteriosclerosis. In addition, smoking is known to lower the HDL cholesterol levels.

Angina decubitus from coronary contractions has recently attracted attention, for which smoking is regarded as the major cause.

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Section 4 *Respiratory Diseases (P.136)*

Summary

The structural and functional influences of smoking on the respiratory organs are briefly summarized here. Smoking increases the risk of a range of respiratory diseases. These diseases include bronchial asthma, spontaneous pneumothorax, pulmonary eosinophilic granuloma, cataplectic interstitial pneumonia, respiratory bronchiolitis-associated interstitial lung disease, sleep respiratory disorder, respiratory infectious diseases and acute eosinophilic pneumonia. These diseases are in addition to the well-known tobacco-related diseases like lung cancer and chronic obstructive pulmonary disease.

The increase in chronic obstructive pulmonary disease has recently become an issue. It has been reported that changes in forced expiratory volume in 1 second are significantly reduced if middle-aged smokers sensitive to tobacco smoke refrain from smoking. The relationship between young people's beginning to smoke and the onset of acute eosinophilic pneumonia was first reported in Japan, and is attracting attention as a new type of tobacco-related disease.

Section 5 *Other diseases (P.146)*

Summary

Some reports say that smoking reduces the risk of Alzheimer's disease. However, studies that attempted to duplicate such findings while removing the methodological problems were not able to confirm the results. Recently, more reports agree that smoking is a risk factor.

The oral cavity is the part of the body that comes into first contact with cigarette smoke. Smoking causes stomatitis and leukoplakia in the mucous membrane of the oral cavity. Smoking also quickens the onset of peptic ulcers and retards recovery. While smoking lowers the risk of colitis ulcerosa, an inflammatory intestinal disease, it increases the risk Crohn's disease.

Four recent cohort studies indicate that smoking increases the risk of insulin-independent diabetes mellitus. The risk of contracting this illness is reportedly low in non-smokers and high in those who began smoking at a young age. Smoking hastens the onset of diabetic nephropathy in patients with insulin-dependent or independent diabetes mellitus. Smoking could increase the risk of diabetic retinopathy in the patients with insulin-dependent diabetes mellitus, although there is insufficient

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evidence so far to draw this conclusion. There have been no reports so far indicating a relationship between smoking and diabetic retinopathy in insulin-dependent diabetes mellitus.

The risk of osteoporosis has been shown to increase in proportion to the number of cigarettes consumed and the length of time a person has been smoking, even after adjustments are made for such confounding factors as menopause, physique, exercise, and nutrition. It is also shown that quitting smoking leads to a reduced risk of bone fractures, although five years are not enough until such effects appear and it takes a full ten years.

Many reports say smoking is a risk factor for moderate or severe periodontal diseases. The quitting of smoking is shown to lower the risk of periodontal diseases.

Smoking is also responsible for injuries such as burns and scalds.

Nicotine increases sleep latency and has been found to reduce the total number of sleeping hours as well as the number of hours of REM sleep. Some studies indicate a relationship between smoking and sleep disorders.

Section 6 *Diseases with risks that could be lowered by smoking (P.156)*

Summary

It is widely known that very few smokers have Parkinson's disease, a disease associated with premorbid personalities described in such terms as "methodical," "dull," and "ascetic." Many nonsmokers having Parkinson's disease may reflect such premorbid personalities. It has been confirmed that the administration of nicotine temporarily relieves the symptoms of Parkinson's disease. However, these findings only produce further evidence that nicotine increases the ability to produce dopamine, which is weakened in patients with Parkinson's disease, and should be distinguished from the effect of preventing dopamine-producing cells from dropping out.

Many studies have confirmed that smokers have low risks of colitis ulcerosa with dose-response relationships and that ex-smokers have high risks.

Section 7 *Risks that are lowered by quitting smoking (P.164)*

Summary

It has been confirmed that quitting smoking is associated with reduced risk of cancers of the lungs, oral cavity, esophagus, stomach, pancreas, and bladder. The same effect, however, was not confirmed with primary hepatoma.

With lung cancer, the risk amongst people who quitted smoking was found to be lower at about 30-50% of the risk amongst people who continued to smoke within ten years.

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The figure was found to drop further if the person continued to refrain from smoking. The reduced risk was found to be more pronounced amongst those who quit smoking at younger ages. Nevertheless, the risk after quitting smoking remains low regardless of the age the person quit smoking, compared with those who continue to smoke.

Alcohol intake could be a confounding factor for oral or esophageal cancer. However, lower risk of ex-smokers remained the same even after adjusting by alcohol intake.

With stomach cancer, the lowered risk that results from quitting smoking was found to remain unchanged even after socio-economic conditions, vegetables and fruits intake, and alcohol intake were adjusted. It appears that the risk begins to be lower about 10 years after the person gives up smoking.

There are several hypotheses explaining the possible causes of pancreatic cancer. No convincing reason has been found apart from smoking. The knowledge that quitting smoking lowers the risk of pancreatic cancer strengthens the hypothesis that smoking causes this type of cancer. With bladder cancer, ex-smokers had a lower risk than smokers did when analyzed in terms of how many cigarettes they smoke per day and for how many years they had been smoking.

The effects of quitting smoking on circulatory diseases have also been confirmed. Providing people with guidance on how to refrain from smoking is very important for the prevention of circulatory diseases. We obtained the following results from epidemiological observational studies and intervention studies on quitting smoking and circulatory diseases.

Quitting smoking quickly lowers the rate of coronary diseases and apoplexy, and lowers the level of these diseases to that of nonsmokers within a few years, regardless of age and sex.

Drug treatment only is insufficient to prevent circulatory diseases. The diseases are more effectively prevented if the patient refrains from smoking.

It is necessary to refrain from smoking to prevent the recurrence of coronary diseases and apoplexy, as well as for the primary prevention of circulatory diseases.

Paragraph 6 Influences of smoke on nonsmokers (P.174)

Summary

Tobacco smoke involved in passive smoking is the mix of smoke in the atmosphere from the lit end (sidestream smoke) and smoke that passes through the tobacco itself to reach the smoker's oral cavity (mainstream smoke). Such tobacco smoke is generally referred to as "environmental tobacco smoke." The acute influences of environmental

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tobacco smoke may induce a variety of subjective symptoms on the eyes or mucous membranes of the respiratory tract. Quantitative evaluation and physiological evaluation of such acute influences are being attempted. Studies are also underway with voluntary adult nonsmokers involving the influences on the central nervous system, the cardiovascular and respiratory functions and on functions and properties of blood. In addition, influences on patients with chronic diseases are being studied with respect to asthma, ischemic heart disease, and children.

Meanwhile, there have also been studies on the chronic effects of environmental tobacco smoke. Nine diseases that are certainly related to, and five diseases that are thought to be related to passive smoking have been identified. The nine diseases related to passive smoking are: ischemic heart disease, lung cancer, cancer of the paranasal sinuses, acute lower respiratory infectious diseases in child, the onset and aggravation of bronchial asthma in children, chronic respiratory symptoms in children, tympanitis in children, low birth weight, and sudden infant death syndrome. Five diseases that are thought to be related to passive smoking are: cervical cancer, the aggravation of bronchial asthma in adults, respiratory hypofunction, miscarriage, and disorders associated with recognition and behavior. These diseases were identified by studies on nonsmokers whose spouses smoke at home and nonsmokers whose work colleagues smoke in the workplace. In addition to the volume of epidemiological knowledge, passive smoking has been shown to damage nonsmokers' ability to perform exercise, to adversely affect lipid metabolism and the function of blood platelet and vascular endothelium, and to facilitate arteriosclerosis. Overall evaluations of these studies and those with animals led us to find a strong relationship between passive smoking and ischemic heart diseases.

Section 1 *Acute effects of passive smoking (P.175)*

Summary

In Japan, it is not unusual for nonsmokers regardless of their age to experience passive smoking in public places, workplaces, and at home. Passive smoking induces a wide variety of acute effects. Exposure to environmental tobacco smoke (ETS) for only a few seconds can lead to pain and annoyance with various subjective symptoms such as stimulation to the eyes. It also causes increased heartbeat and peripheral vasoconstriction via reflex of the nasopharynx. ETS exposure therefore is a particular problem in public places. With ETS exposure for minutes or hours, the degree of CO-Hb saturation in the blood increases. The increase in blood pressure along with coronary constriction appears in healthy adults, and in patients complaining of simple

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chest pains, blood pressure increases in the aorta while the resilience of the aorta deteriorates. In patients with chronic asthma or ischemic heart disease, ETS exposure can induce the risk of spasms or aggravate the symptoms.

Passive smoking at home is especially problematic for children. In particular, it has been warned that in younger children with pediatric asthma, the ETS exposure not only exacerbate the symptoms but also weaken the pulmonary function, leading to the increase in the incidence of various respiratory diseases.

Section 2 *The chronic effects of passive smoking (P.200)*

Summary

Research into the effects of passive smoking on health has rapidly progressed in recent years. Nine diseases have been identified that are certainly related to passive smoking, and a further five diseases are thought to be related to passive smoking. The nine diseases related to passive smoking are: ischemic heart disease, lung cancer, cancer of the paranasal sinuses, acute lower respiratory infectious diseases in children, the onset and aggravation of bronchial asthma in children, chronic respiratory symptoms in children, tympanitis in children, low birth weight, and sudden infant death syndrome. Five diseases that are thought to be related to passive smoking are: cervical carcinoma, the aggravation of bronchial asthma in adults, respiratory hypofunction, miscarriage, and disorders associated with recognition and behavior. These diseases were identified by studies in nonsmokers whose spouses smoke at home and nonsmokers whose work colleagues smoke in the workplace. Therefore, these fourteen types of diseases are a common threat to each and every nonsmoker who spends a significant amount of time in the presence of a smoker.

The well-prepared epidemiological studies conducted over the last 10 years have confirmed that passive smoking increases the risk of lung cancer even after adjusting for biases or confounding factors. In addition, the overall evaluation of evidence from animal experiments, genetics, pathology and biochemistry led us to find that passive smoking is undoubtedly associated with lung cancer. Passive smoking appears to increase cervical carcinoma as well as obviously increasing cancer of the paranasal sinuses. The risk of myocardial infarction also increases by 20 to 30% as a result of passive smoking. In addition to the volume of epidemiological knowledge, passive smoking has been shown to damage the ability of nonsmokers to exercise, as well as adversely affect lipid metabolism and the function of blood platelet or vascular endothelium, and fascilitate arteriosclerosis. Overall evaluations of these studies and those with animals led us to find a strong relationship between passive smoking and

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ischemic heart diseases.

Passive smoking induces serious influences that may even be life threatening for a fetus or infant. It has been reported that in addition to the smoking by pregnant women, smoking by other family members during pregnancy and postnatal period is a major risk factor for sudden infant death syndrome. Passive smoking at home doubles the risk of the onset and aggravation of bronchitis, pneumonia, tympanitis, chronic respiratory symptoms and bronchial asthma in infants.

Paragraph 7 Influences on the next generation – The effects on health of the age at which people take up smoking (P.252)

Summary

The effects of smoking have mainly been studied and elucidated in adults. In recent years, however, there has been a growing interest in how smoking may affect the health of minors under the age of 20 years. A lot of epidemiological studies on this topic have been published. In this paragraph, we will describe how smoking can affect the health of minors by mainly comparing with people who started smoking after they reached maturity.

Paragraph 8 Tobacco Dependence (P.257)

Summary

Nicotine in tobacco that has been habitually used as a substance of pleasure (*"shikohin"*) for many years has been shown in various reports to be a strong substance of dependence comparable to heroin, cocaine, and alcohol. In 1980, the American Psychiatric Association classified tobacco dependence or nicotine dependence as an official diagnosis of mental disease. It is considered that the development of nicotine dependence involves many factors in a complex way, including not only such individual factors as personality and biological factors but also social or cultural factors like those involving the societal atmosphere, the law, and the expense for smoking. Elucidating the mechanisms by which these factors work is important in preventing and treating nicotine dependence.

Recently, the worldwide increase in the number of young people taking up smoking has become an issue. It has been reported that the longer a person smokes, the more difficult it is for the person to quit smoking. For young people, tobacco could also be a Gateway Drug triggering the abuse of other drugs. This is why there is an urgent need for measures against youth smoking.

In this paragraph, we will describe the dependence on tobacco, including the

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mechanism of how nicotine dependence is developed and the concept of Gateway Drugs.

Section 1 *The effects of nicotine on mental functions (P.258)*

Summary

Nicotine is clearly a substance of dependence which has mainly been considered to be related to its influence on dopaminergic neurons in the brain. However, the development of nicotine dependence is very complex, involving various biological, psychological, and social factors, including positive reinforcing effects, toxic effects, discriminative effects or cueing effects of the substance, and stimuli conditioned to the effects of the substance. In other words, many important factors come into play in the process during which smoking behaviors develop into dependence. These factors include such individual factors as personality and biological characteristics as well as factors relating to the effect of nicotine on the central nervous system, cultural factors, social atmosphere, the law, the expense for smoking, and so on. Recently, attention has been drawn to the dependence development in youth, and many people have emphasized the importance of measures against smoking intended for young people. Of the factors mentioned above, we will focus in this paragraph on the effects of nicotine on mental functions.

Section 2 *Dependence on tobacco and nicotine (P.265)*

Summary

According to the World Health Organization (WHO), 1969, the core symptoms of dependence/addiction are (1) obsessive-compulsive symptoms on a substance resulting in repetitive use, and (2) the rewarding or favorable experience by the use of the substance. It was during the 1970s and 1980s when nicotine contained in tobacco was known to possess dependence potential, however, it took time for such notion to be accepted, partly due to the fact that tobacco was recognized as *shikohin* (*translation note:* closest English would be "pleasure products"). Tobacco or nicotine dependence was first officially identified as a mental disease in the book, "*Diagnostic and Statistical Manual of Mental Disorders*," third edition (DSM-III), published by the American Psychiatric Association in 1980, followed by the inclusion in WHO's "*International Statistical Classification of Disease and Related Health Problems*," tenth edition (ICD-10). In this paragraph, we will provide an overview of the characteristics of nicotine dependence focusing on tolerance, withdrawal symptoms

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and compulsive use, together with the comparison with other substances of dependence.

Section 3 *Tobacco and Gateway Drugs (P.273)*

Summary

A drug that, if abused, can lead a person liable to abuse other drugs is called a Gateway Drug (or Entry Drug). This concept drew attention in the United States in the 1950s, when there was debate about whether marijuana was a Gateway Drug to heroin. In Japan, we rarely find any studies being conducted in this area.

Follow-up studies in the Western nations have reported that licit drugs encourage cannabis abuse, which further leads to the abuse of other illegal drugs. In addition, the studies have found that many people start drinking alcohol before taking up smoking while other people experience smoking first before drinking alcohol. Other findings have indicated that Gateway Drugs are different between the sexes, that specific types of groups have different Gateway Drugs from those of the general population, and so on. The concept of Gateway Drug applies to drug abuse in Western nations, although the findings cannot be summed up into a single conclusion. Gateway Drugs may differ depending on the region, sex, race, ethnic group, and so on.

In Japan, cross-sectional studies on minors' smoking, drinking, and abuse of organic solvents have revealed that minors experience alcohol first, followed by smoking and drinking with friends. Presumably, the drug abuse of minors in Japan develops in the following order; drinking alcohol, then smoking followed by drinking alcohol in the absence of any family members. However, most Japanese people have the opportunity to drink alcohol before they are of legal age, on formal occasions such as wedding ceremonies and funerals, This information suggests that taking-up smoking may rather be more important in our country. This is based on the facts that a drastic increase in the rate at which people abuse organic solvents is observed when the frequency of smoking is high, and that, according to the survey on patients with methamphetamine-related mental disorders, many patients experienced organic solvents abuse prior to methamphetamine abuse,. Japan needs follow-up studies on these issues to confirm whether the concept of Gateway Drug applies to drug abuse amongst minors.

Chapter 3 Cases of intervention policies and their effects

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Summary

Chapter 3 describes warning indications, anti-smoking advertising campaigns, prices and consumption, guidance on and support for people wishing to quit smoking, health education, and efforts by international organizations.

Regarding the effect of smoking on health, many countries have implemented regulations through various forms of education and laws. The effects of such regulations have also lead to a variety of studies, including the study in Australia reporting that the number of people who remember the contents of a warning indication is high immediately after it is introduced, but the percentage of those who still remember the contents drops within one month of introduction. Some reports from the United States say that changing only the contents of a warning indication has no effect if the format was kept the same. Recent warning messages on tobacco products in Canada and Australia include some visual components, such as pictures, a compulsory size of the warning and different messages to appear by rotation.

Regarding the influence of price increases on tobacco consumption, it has been reported that if the price of tobacco increases at a quicker rate than other prices or income, tobacco consumption will decrease, and this may particularly discourage minors and people on low income from consuming tobacco products.

Many countries are committed to counseling people to give up smoking as a means of intervening in smoking habits, and many related studies and reports have been released. According to some reports, counseling people to give up smoking by healthcare professionals has been found to significantly increase the rate at which people give up smoking. If more than one person is involved in the counseling, the effects have been found to be more pronounced.

Commitments to the prevention of smoking are also being given in Japan. In the 1990s, we have seen programs focused not only on providing the knowledge of health influences of smoking, but also on making the youth to be aware of the existence of social factors associated with youths to start smoking, and on providing skills to cope with these social factors. New government guidelines for teaching, which will be fully implemented from 2003, stipulate that the prevention of smoking is included in the curriculum of the sixth grade of elementary school.

As we have indicated so far, there have been a variety of tobacco policies in many countries. With considerations on the expansion of cross-bordered economic activities by multinational companies and the imbalance among nations with regard to necessary resources for enforcing tobacco countermeasures, it was decided to prepare the "Framework Convention on Tobacco Control (FCTC)" at the World Health Assemby

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in 1996 by the World Health Organization (WHO). Negotiations are underway between governments to adopt this framework in May 2003.

Paragraph 1 Health education (P.279)

Summary

Paragraph 1 explains the policies intended to prevent people from smoking, such as the warnings on tobacco packaging, education to prevent young people from smoking, restrictions on tobacco advertising, and how price increases due to increases in the taxes on tobacco influence the consumption of tobacco.

Regarding the warnings on packaging, we present examples from three countries, Thailand, Australia, and Canada, where tobacco packaging is required to have a large warning. These measures have been found to be effective in reminding smokers of the dangers of smoking.

Smoking by young people, which sharply increases in the higher grades of elementary school and after, is strongly related to the smoking behavior of the person's friends or family members who smoke, and to the expectations on the person's future smoking habits. In the education to prevent young people from smoking, we have seen from the 1990s programs focused on how to handle the social factors causing the person to start smoking and how to acquire general psychological and social abilities, or life skills. This education is provided in addition to merely providing information on the effects of smoking on health.

Tobacco advertisements play an important role in people's use of tobacco. From the 1970s, many countries have imposed restrictions on tobacco advertising. There have also been a number of studies on the effects of such restrictions. It is considered that if tobacco prices increase at a quicker rate than general prices or income, tobacco consumption will fall away. It is believed that such price increases could eventually discourage minors and people on low incomes from consuming tobacco products, and could lead to fewer adverse effects on health and less medical expenses in the future.

Section 1 Health education (P.280)

Summary

The percentage of young people in the higher grades of elementary school and older who have experienced smoking has sharply increased for both boys and girls. Of sixth grade students, about 20% of boys and 10% of girls have experienced smoking. In the third grade of junior high school, the figures are about 31% to 49% of boys and 15% to 20% of girls, and by the third grade of senior high school the figures reach 48% to 66%

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of boys and 17% to 42% of girls.

The percentage of smokers, defined as people who have smoked in the last month, increases in boys from the first grade of junior high school and older, with 3% to 8% in the first grade and 8% to 12% in the third grade. The figure reaches 26% to 40% in the third grade of high school. For girls, the percentage of those who have experienced smoking increases from the first grade of high school and older, with 3% to 8% in the first grade and reaching 5% to 15% in the third grade.

Some cross-sectional studies and follow-up studies have identified social factors and individual factors that are closely connected with young people's smoking habits. It has been shown that young people's smoking behavior and attitudes are strongly connected with those of their parents, siblings and friends. As the young people get older, they tend to be influenced more from siblings or friends than from parents.

On an individual level, it has been shown that factors as the future expectations of each individual's smoking behavior or intention to smoke are most closely linked to the person's smoking behavior. It has also been shown that self-control, demonstrated by refusing the invitation of friends to smoke, or the level of self-esteem could influence young people in starting to smoke.

The teaching guidelines prescribing the school curriculum have resulted in physical education in elementary schools as well as health and physical education in junior high and high schools improving in both quality and quantity. In the past, the teaching guidelines for elementary schools included no reference to the prevention of smoking. The new teaching guidelines, which will be fully implemented in 2003, prescribe including topics relating to the prevention of smoking in the sixth grade. New teaching guidelines for junior and senior high schools prescribe that, in addition to informing students of how smoking affects health, the prevention of smoking should include a knowledge of behavioral science.

In the 1990s, we have seen several comprehensive smoking-prevention programs in Japan. In addition to simply providing students with knowledge on the effects of smoking on health, some of these programs are focused on helping young people realize the presence of social factors that make them take up smoking and helping them cope with the influences. Other programs are focused on improvement of life skills that are a common factor for young people's risky behaviors including smoking, alcohol consumption, and drug abuse.

Section 2 *Warnings on tobacco products (P.293)*

Summary

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Warnings on tobacco packaging and advertisements play an important part in providing appropriate information on smoking and health. In Canada and Australia, warnings are displayed on a prominent part of the packaging. To prevent the effect of the messages becoming dulled through repetition, several patterns of warning sentences are used.

Section 3 Influences of tobacco advertising and evaluation of restrictions on such advertising (P.300)

Summary

Tobacco advertising directly appeals to consumers and potential consumers, and increases the rate of smoking and the volume of consumption. At the same time, such advertising has some indirect effects, as seen in when the media avoids reports on the adverse effects of tobacco on health because it may threaten the advertising revenue from the tobacco companies. Presently, many advanced nations are taking the lead in prohibiting or restricting tobacco advertising. The partial restrictions on tobacco advertising implemented in the United States merely shifted tobacco advertising from the broadcasting media to the print media or other forms of promotion.

Paragraph 2 Influences of price increases on the consumption of tobacco (P.309)

Summary

In Japan, the percentage of the tax for the retail price of tobacco is a little over 60%, which is no higher than other advanced nations. Half of the taxes raised on tobacco goes to the national government while the remainder goes to local government. Increases in the retail prices of tobacco are shown to reduce the rate of smoking and the volume of tobacco consumption. In particular, it is considered that the reduction in tobacco consumption could be larger particularly in developing countries or amongst minors or economically impoverished people.

Paragraph 3 Counseling and support for quitting smoking (P.316)

Summary

Paragraph 3 discusses the study reports from overseas on the effects of preventing diseases via intervening in people's smoking habits. Paragraph 3 also looks at the trends in and effectiveness of smoking cessation counselings conducted in the Western countries and Japan, and gives an economic evaluation of tobacco policies.

The 1991 smoking cessation program implemented by the United States' National Cancer Institute (NCI) emphasizes a behavioral science approach, the prevention of

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recurrence, nicotine replacement therapy, counseling in the daily medical practice, and the self-help approach. In 1996, the United States' Agency for Health Care Policy and Research (AHCPR) conducted a meta-analysis on studies involving the assessment of nicotine dependency and support for smoking cessation initiatives. The agency issued "Guidelines for clinical therapies for quitting smoking" based on the results of the meta-analysis. In Britain, "Guidelines for healthcare professionals to help smokers quit smoking" was issued in 1998 based on reviews of AHCPR and the Cochrane Library. Both guidelines emphasize the roles of people engaged in healthcare.

In Japan, we have recently seen several studies on the effectiveness of outpatient clinic, medical checkup, outpatient smoking cessation clinic, individual counseling for inpatients, and group counseling such as quit-smoking classes. Other reports deal with the self-help technique and the effects of quit-smoking counseling for specific groups, such as local groups and pregnant women.

As well as being a factor in health disorders, smoking leads to serious social losses. These losses can be prevented if we have appropriate tobacco policies. In addition to improvements in health, an important condition identified for well-grounded tobacco policies is economic efficiency (that is, a good relationship between cost and effect).

Section 1 *Smoking Cessation counseling and support program (P.317)*

Summary

In addition to observational studies, intervention studies have led to reports suggesting the effects of quitting smoking to improve one's health.

Recent international trend in smoking cessation counseling and support is toward attaching importance to interventions in medical institutions where many smokers can be worked upon. The active use of drug therapies is recommended, such as nicotine gum and nicotine patches, which have been found to nearly double the rate at which people give up smoking. In Britain and the United States, guidelines have been prepared for the purpose of spreading effective smoking cessation counseling and support.

Japan has lagged behind the developed Western nations in its commitment to smoking cessation counseling and support. Recently however, studies have been conducted to verify various types of commitments and their effectiveness. These efforts are gradually producing good results.

Section2 Economic efficiencies of Smoking Cessation counseling and support (P.336)

Summary

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Smoking causes serious damage both to people's health and to society. Because tobacco is sold as general merchandise, each and every person should be sufficiently informed so that they can consider both the benefits and costs when making their judgment. Since tobacco is dependence producing, smokers should be provided with active support for quitting smoking. Therefore, scientifically well-grounded support for people to quit smoking is being selectively conducted. In particular, the diagnostic guidelines prepared as a practical recommendation are being widely used.

Information on the economic efficiencies, that is, the good relationship between cost and effect, is gaining in importance, as well as improvements in health. Economic evaluations have been made to achieve the optimum benefit from the limited number of healthcare resources. When all of the evaluation results have been considered, anti-smoking support excels in cost and effect. It is also pointed out that anti-smoking support should be actively utilized as a representative of desirable healthcare service.

Paragraph 4 Commitments by international organizations (P.347)

Summary

Fearing the global spread of health problems from tobacco consumption, the World Health Organization (WHO) has made recommendations to promote comprehensive tobacco policies in member nations and to cooperate with other international organizations. In addition to these recommendations, preparations for the "Framework Convention on Tobacco Control (FCTC)" were decided at the World Health Assembly held in 1996. Talks are currently underway between the governments for ratification of the related treaty. The World Bank proposed tobacco policies in its report entitled "Curbing the Epidemic: Government and the Economics of Tobacco Control." Other organizations involved in tobacco policies include international organizations such as the United Nation's Economic and Social Council (ECOSOC), Food and Agriculture Organization (FAO), International Civil Aviation Organization (ICAO), International Labor Organization (ILO), United Nations Educational, Scientific, and Cultural Organization (UNESCO), United Nations International Children's Emergency Fund (UNICEF), and United Nations Environment Program (UNEP), as well as NGOs like the World Medical Association.

PM3006445400

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Chapter 4 Reference materials on smoking issues (P.355)
Reference 1: Percentage of smokers by sex and age in Japan
Changes in the percentage of smokers by sex and age in Japan
Study results of the percentage of smokers by sex and age conducted by Japanese governmental organizations: Summary
Reference 2: Chronological table of smoking and health issues
Reference 3: Notifications on the protection of non-smokers
Excerpts from the report of the council for the Tobacco Action Plan
Promotion of anti-smoking initiatives: report from an administrative vice-minister
Outline of the report of the meeting for segregated smoking in public places
Guidelines on measures against smoking in the workplace
Excerpts from "Reports of the meeting for preparation of guidelines on policies involving smoking in the workplaces of the public service" by the National Personnel Authority
Activities of private organizations
Outline of "Promotion of segregated smoking in Tokyo"
Reference 4: Warnings on tobacco products
Canada
Australia

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